

### WHAT IS CLAIMED IS:

1. A method to eliminate interference occupying at least one part of the spectrum of one or more signals received by a network of N sensors, the method comprising at least the following steps:
  - subdividing each sample  $x_i$  of signals into K frequency bands,
  - weighting the samples  $x_{ik}$  obtained by subdivision, with weighting coefficients  $w_{ik}$  determined by power inversion processing,
  - combining the different weighted coefficients  $w_{ik} \cdot x_{ik}$  by given frequency band index k to obtain signals  $s_k$  corresponding to  $\sum_{i=1}^N w_{ik} \cdot x_{ik}$ , and then carrying out the combination of the signals  $s_k$  for the totality of the bands K.
2. A method according to claim 1 wherein the power inversion processing is, for example, of the CRPA type.
3. A method to eliminate the interferences occupying a part of the spectrum of a signal received by a network comprising N sensors, wherein the method comprises at least the following steps :
  - digitizing the signals  $s_i$  received by the sensors in N digital samples  $x_i$ ,
  - transmitting the  $x_i$  digital samples to K filters  $G_k$  in order to subdivide each sample  $x_i$  into K frequency bands,
  - applying the  $x_{ik}$  samples obtained by subdivision to :
    - a computation unit adapted to determining the weighting coefficients  $w_{ik}$ , by power inversion processing,
    - a processing block adapted to :
      - combining the different weighted coefficients  $w_{ik} \cdot x_{ik}$  for a given filter index k in order to obtain signals  $s_k$  corresponding to  $\sum_{i=1}^N w_{ik} \cdot x_{ik}$ ,
      - combining the signals  $s_k$  in order to obtain a signal S' that is totally or mostly free of interference.
4. A method according to claim 3 wherein the subdivision step uses an FIR type filter.

5. A method according to one of the claims 1 to 4, comprising a step for filtering the dynamic range of the coefficients coming from the computation unit.
6. A use of the method according to one of the claims 1 to 5 or of the device according to claim 7 to 10 for the elimination of interference in a signal sent by a satellite and received by a GPS receiver.
7. A device to eliminate interferences in one or more signals  $s_i$  received by a network of  $N$  sensors comprising at least one set of means adapted to subdividing each sample  $x_i$  of signals into  $K$  frequency bands, weighting the samples  $x_{ik}$  obtained by subdivision with weighting coefficients obtained by power inversion processing, combining the different weighted coefficients  $w_{ik} \cdot x_{ik}$  by given frequency band index  $k$  in order to obtain signals  $s_k$  corresponding to  $\sum_{i=1}^N w_{ik} \cdot x_{ik}$ , combining the signals  $s_k$  for the totality of the bands  $K$ .
8. A device according to claim 7 wherein the power inversion processing is a CRPA type processing.
9. A device according to claim 7 comprising at least:
  - one signal reception chain comprising circuits for the frequency transposition of the frequency of the initial signal to an intermediate signal and an ADC to convert the signal  $S$  into  $N$  digitized samples,
  - a device adapted to subdividing each digitized signal  $x_i$ , into  $K$  frequency bands, in order to give  $N \cdot K$  samples  $x_{ik}$ ,
  - a computation unit receiving the  $N \cdot K$  samples and suited to determining weighting coefficients  $w_{ik}$ , by power inversion processing,
  - a processing block receiving the weighting coefficients  $w_{ik}$  and the samples  $x_{ik}$ , said block being suited to the application of the weighting coefficients to the different samples, carrying out the combination firstly for a given index  $k$  of the  $x_{ik}$  weighted samples with  $k$  of varying from 1 to  $K$  and secondly the  $K$  signals  $s_k$  with  $k$  varying from 1 to  $K$ , in order to obtain a signal  $S'$ .
10. A device according to one of the claims 7 or 9, wherein the means for subdividing the samples into  $K$  frequency bands is formed by a set of  $K$  FIR type filters.

11. A device according to one of the claims 7 to 10, comprising a device to filter the dynamic range of at least one of the weighting coefficients such as a Kalman filter.
12. An application of the device according to one of the claims 7 to 10 to eliminate the interferences in the signals sent by a satellite and received by a GPS receiver or again by a spread-spectrum positioning system or again a spread-spectrum navigation and communications system.